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Patent Application of

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Title of the Invention

Foldable, Portable Bed Bath Device

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SPECIFICATION

TITLE OF THE INVENTION

Foldable, Portable Bed Bath Device

BACKGROUND OF THE INVENTION

Technical Field:

The present invention relates to a portable, foldable bath device for use on a bed, particularly by a bed-ridden patient.

Background Information:

Hospitalized, paralyzed, aged, or otherwise bed-ridden patients often have no way to enjoy a bath, other than a cursory sponge bath. The inexpensive bath device of the

present invention allows such patients to enjoy the health and other benefits a bath affords. The bath device of the present invention is easy to use and decreases the amount of lifting required of the caregiver administering the bath. Since the bath is given in the bed, the patient need not be disturbed by a lot of moving. The present bed bath device is portable, lightweight, and easy to clean, and folds into a compact bundle, which is easy to carry and store. A shower head may optionally be included for use when the patient desires a shower as well as a bath.

The bath device of the present invention can be used in nursing homes, hospitals, or other facilities for a series of patients, or in private homes. It is particularly suitable for giving a bath to an older or infirm person. It can also be used in a funeral home for a final washing of a body. Since the present bath device can be brought to the body, the body need not be moved to and from the surface on which it is lying.

BRIEF SUMMARY OF THE INVENTION

The present invention is a portable, foldable bath device for use on a bed or other support surface, which includes:

(a) a generally planar, flexible, water impervious bottom wall;

(b) at least one flexible, water impervious side wall attached along one of its side edges to the periphery of the bottom wall; and

(c) an aperture in one of the walls of the bath device, the aperture being occludable by an openable and closable closure mechanism;

wherein the side wall is convertible from a generally horizontal, planar, folded position adjacent the bottom wall to a generally vertical, erect, open position extending in an upward direction from the generally horizontal bottom wall.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

A more complete understanding of the invention and its advantages will be apparent from the following detailed description taken in conjunction with the accompanying drawings, wherein examples of the invention are shown, and wherein:

FIG. **1** shows a perspective view of a bath device according to the present invention, in an open position with a connection to a water tank;

FIG. **2** is a top plan view of the bath device according to FIG. **1**, shown in an open position;

FIG. **3** is a side elevational view of a bath device according to the present invention, shown in an open position;

FIG. **4** is a top plan view of a bath device according to the present invention, shown in a folded position;

FIG. **5** is a top plan view of a bath device according to the present invention, shown in a partially folded position;

FIG. **6** is a perspective view of the bath device according to FIG. **3**, in a partially folded position;

FIG. **7** is a top plan view of an alternate embodiment of a bath device according to the present invention, shown in a partially folded position;

FIG. **8** is a perspective view of an alternate embodiment of a bath device according to the present invention, shown in an open position;

FIG. **9** is a top plan view of an alternate embodiment in a corner of a bath device according to the present invention, shown in a partially folded position;

FIG. **10** is a perspective view of the bath device according to FIG. **8**, shown in a partially open position;

FIG. **11** is a top plan view of the bath device according to FIG. **9**, shown in an open position;

FIG. **12** is a perspective view of an alternate embodiment in a corner of a bath device according to the present invention, shown in a folded position;

FIG. **13** is a perspective view of the bath device of FIG. **12**, shown in an open position;

FIG. **14** is a perspective view of a bath device according to the present invention, shown in an open position;

FIG. **15** is a perspective view of an alternate embodiment in a corner of a bath device according to the present invention, shown in a folded position;

FIG. **16** is a perspective view of the bath device of FIG. **13**, shown in an open position; and

FIG. **17** is a perspective view of a bath device according to the present invention, showing a connection to a sink.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, like reference characters designate like or corresponding parts throughout the several views. Also, in the following description, it is to be understood that such terms as "front," "back," "within," and the like are words of convenience and are not to be construed as limiting terms. Referring in more detail to the drawings, the invention will now be described.

Turning first to FIG. **1**, a bath device 10 according to the present invention for giving a bed-ridden person a bath and/or shower is comprised of a flexible, water impervious, or waterproof, substantially planar bottom wall 11 and at least one flexible, waterproof side wall 12 extending up along the periphery of the bottom wall. The side wall 12 is convertible from a planar, generally horizontal position adjacent the bottom wall 11 to a generally vertical position extending in an upward direction from the bottom wall 11. The bath device 10 has a folded position, and an open position for placement on the top of a bed mattress or other support surface under a patient or other user.

As shown in FIG. **1**, the bath device 10 is preferably generally rectangular in shape, and the side wall 12 is preferably comprised of four sections: two mirror-image, opposite, substantially parallel end side walls 12a, 12b at opposite ends of the bath device, and two opposite, substantially parallel longitudinal side walls 12c, 12d. One end of each of the end side walls 12a, 12b is connected, preferably at about a right angle, to an end of one of a set of mirror-image, opposite longitudinal side walls 12c, 12d. The rectangular shape allows the bath device 10 to substantially cover the upper surface 14 of the hospital or home bed 13 or other type of support surface. An oval shape would also

be suitable. The two end side walls 12a, 12b are shorter in length than the longer, matching, opposite side walls 12c, 12d, which extend along the sides of the bath device 10. When the bath device 10 is in an open, unfolded position as shown in FIG. **1**, its bottom wall 11 extends in a generally horizontal position over an upper surface 14 of the user's bed, and the side walls 12a-d of the device extend up in a generally vertical, erect position in order to contain any bath water 20 within the bath device.

The bath device 10 is made of a water impervious material. The bottom wall 11 is preferably made of a durable, thin, substantially rip-proof plastic material. The side walls 12 are preferably made of a thicker plastic material, which is more rigid yet somewhat foldable and flexible, so they will remain in an upright position and not buckle under pressure, yet not be uncomfortable when temporarily under the patient. The side walls 12 and bottom wall 11 may be made of a single sheet of material, such as a flexible polyvinylchloride material. Preferably, though, the side walls 12 are sealed to the corresponding edges of the bottom wall 11, most preferably by heat sealing or a suitable adhesive.

Referring to FIGS. **1** and **2**, an aperture 15 is formed in a wall of the bed bath device 10. The aperture 15 is occluded by an openable closure mechanism 16. Preferably the circular aperture 15 is in a lower corner 17 of the bed bath device, as shown in FIG. **2**. The closure mechanism 16 is preferably a simple valve assembly. The closure mechanism may be of a type that is openable by hand, or it may be a pressure valve assembly with a circular-shaped valve that opens with increased pressure from water in a full bath device. There are preferably no other apertures in the bath device. The bath device of the present invention is preferably one-piece, and no bolts are required to hold it together.

As shown in FIG. **3**, one end of a length of flexible hose 18 is connectable to a flange 22 affixed to the wall around the periphery of the aperture 15. A corresponding member 22b is affixed to the end of the drainage hose 18. Preferably, the outside surface of the flange 22 is threaded, the inside surface of the corresponding hose member 22b is correspondingly threaded, and both the flange 22 and the hose member 22b are generally cylindrical in shape. The drainage hose 18 is also made of a durable, water impervious material. An opposite end of the length of drainage hose 18 empties to a collection container, which is most preferably a five gallon bucket 19. Water 20 emptied from the bed bath device 10 during or after the bath, is collected in the bucket 19. The bucket 19 is periodically emptied by hand in a sink or the like.

In opening the bath device 10, it is preferably placed on the bed 13 or other support surface so that the lower corner 17 where the drainage hose will be connected is slightly skewed over the edge of the mattress 21 supported on the bed, as depicted in FIG. **1**. This is so that the drainage hose 18 extends down in a generally vertical direction adjacent to the side of the bed mattress 21 (or other support surface), allowing the bath water 20 to empty quickly and thoroughly by gravity into the bucket 19. The bucket 19 can then be positioned on the floor close to the corner of the bed 13, as illustrated in FIG. **1**, where it poses less of a hazard to passersby. The length of the drainage hose 18 is preferably slightly less than the height of a conventional bed, measuring from the floor to the top of the mattress.

Referring to FIGS. **4** through **6**, in order to use the bath device 10, a second person carries it to the user/patient's bed 13 (or other support surface) and places it along the edge of the bed next to the patient, generally parallel to the patient lying in the bed, as shown in FIG. **6**. The bath device 10B is shown in a folded position in FIGS. **3** and **4**, and in a partially unfolded position in FIG. **5**. The bath device is ready for storage or transport when it is in the fully folded position 10B (see FIG. **6**). When the bath device is

in the fully folded position 10B (see FIG. **6**), or a partially folded position (see FIG. **5**), the drainage hose 18 has been disconnected for transport or replacement, and the closure mechanism 16 over the aperture 15 is in a closed position. In the folded position 10B, the flexible side walls 12a-12d are folded in toward the center of the bottom wall 11, as shown in FIG. **5**, so that they are substantially coplanar with the bottom wall 11. In the folded position 10B, the flexible bottom wall 11 is folded, or pleated, along its longitudinal axis, so that the bottom wall folds are compressed between the two longitudinal side walls 12c, 12d. Also, the end side walls 12a, 12b are compressed between the ends of the two longitudinal side walls 12c, 12d, as shown in FIG. **6**. If desired, the folded bath device 10B can be further folded in two roughly along its longitudinal axis, so that one longitudinal side wall 12c is on top of the other 12d, forming a more compact bundle. The folded bath device can be folded in half again roughly along its latitudinal axis, if desired, for an even more compact bundle. A short carry strap may be attached to an outer edge at the center of one of the longitudinal side walls (or a long carry strap may be attached at either end to an opposite end of a longitudinal side wall) to facilitate carrying the folded bath device. Also, string ties may be attached to an outer edge at the center of one of the longitudinal side walls for tying the bath device 10 in the folded position, if desired.

To unfold the bath device, the patient (or other user) is pushed onto her (or his) side, with her back facing and substantially parallel to one longitudinal side wall, 12d in FIG. **6**. The longitudinal side wall 12d is pushed down against the bed mattress and as far as possible under the patient's body. The patient is then rocked back onto the longitudinal side wall 12d, the bath device is pulled from the other side of the patient, the patient is pushed back up onto her side, the longitudinal side wall 12d portion is pushed as far as possible under the patient's body, and so forth, until the patient is lying on the bottom wall 11 with one longitudinal side wall on either side of her. If the patient has some mobility, she or he can help with this task. The four side walls 12a-d are then

pulled up into their generally vertical positions. This can be accomplished from the left or right side of the patient, as desired. Since the longitudinal side wall is thin, flexible and collapsible, it does not cause the patient discomfort when she is rolled on top of it. The bath device is generally of a sufficient length so that the patient's head and feet do not encounter the end side walls 12a, 12b, nor does she roll over the opposite longitudinal side wall 12c. The patient lies on top of the soft, flexible bath device, which does not include a cover.

Referring to FIG. **7**, it is only necessary that the longitudinal side wall 12d (or 12c) that will go under the patient be collapsible from a generally vertical position to a generally horizontal position. The other, opposite longitudinal side wall 12c (or 12d) is optionally collapsible. It may permanently remain in a generally vertical position, in which case the device would always be opened from the opposite side of the bed. Longitudinal side wall 12d is shown in a collapsed (horizontal) position in FIG. **7**, with end side walls 12a, 12b being partially collapsed. Longitudinal side wall 12c, which does not go under the patient, is shown in an erect (vertical) position in FIG. **7**.

As depicted in FIGS. **8** through **15**, there are several alternate side wall embodiments, or methods for erecting the side walls 12a-d, in addition to the embodiment described above. In an alternate embodiment illustrated in FIG. **8**, the bottom wall 11 is fused or sealed to a long strip of the same material, which constitutes the side wall 12. An upper portion of the bath device is shown in FIG. **8**. A thin strip of a flexible, strong, nonrusting, noncorrosive, water resistant metal, such as aluminum, a durable molded plastic material, or a rubber-type material 23 along an upper edge of the side wall 12. The strip 23 is most preferably sewn into a seam 24 along the upper edge of the side wall 12. The ends of the thin strip 23 are fused together, or a single rounded or rectangular-shaped strip 23 may be used. The thin strip 23 preferably has substantially the same length as the periphery of the bottom wall, so that the side wall has a tendency to return to

its erect (generally vertical) position. At the same time, the strip 23 is thin so that it is not unduly uncomfortable while it is underneath the patient. The strip is thin enough to be easily, though not permanently, bent so that it can be folded into the folded storage position.

In an alternate embodiment illustrated in FIG. **9** through **11**, each of the corners 27 of the side walls 12a-d of the bed bath device 10 preferably includes built-in corner pleats 25, so that the side walls 12a-d lie flat against the bottom wall when the bath device is in the folded position. As shown in FIG. **9**, the pleat 25 at the end of end side wall 12a allows the end of collapsed adjacent longitudinal side wall 12c to lie relatively flat over the end of collapsed end side wall 12a. FIG. **10** shows the side walls 12a, 12c in a partially open position, showing the pleat 25 at the end of the end side wall 12a. To assemble this embodiment, the side walls 12a-d are pulled up to a generally erect position, and the end portions are fastened to one another by an openable pleat attachment mechanism, preferably a snap 26. A snap member 26a is fastened to a corresponding snap member 26b on the other side of the corner pleat 25. The bath device 10 is show in an open position in FIG. **11**.

In still another alternate embodiment, which is illustrated in FIG. **12** and **13**, side walls 12a, 12c of a thin, flexible material lie flat in the folded position when the bath device is not in use, as shown in FIG. **12**. One end 29 of a short strap 28 is attached, as by gluing, to an end portion of an outside face of an end side wall 12a of the bath device. An opposite end of the strap 28 includes a first hook and loop strip or patch 30a attached (as by gluing) to its lower face. The hook and loop patch 30a corresponds to a second patch of hook and loop 30b attached to an end portion of the outside face of the longitudinal side wall 12c. There is a matching openable strap 28 attachment at each of the four corners 27 of the bath device 10. Alternatively, there is a matching openable

strap 28 attachment at either end of one of the longitudinal side walls, with the other, opposite longitudinal side wall remaining permanently erect.

To assemble the strap/hook and loop bath device 10, the assistant/caregiver pulls the side walls 12a-d up to a generally vertical position and fastens the first hook and loop patch 30a at the end of each strap 28 to the second hook and loop patch 30b. The straps 28 hold the side walls 12a-d up against the force exerted by the bath water 20 when the bath device 10 is full. The straps 28 are preferably made of a water resistant fabric.

Other alternative attachment mechanisms can be used at all four corners 27 of the bath device, or at opposite ends of a longitudinal side wall, in place of the above-described strap mechanism. For example, a first, substantially flat button 31 is attached to an outside face of an end portion of an end side wall 12b of the bath device, as shown in FIGS. **14**. An end portion of a length of cord 32 is wound around the first button 31. To assemble the bath device, the side walls 12b, 12d are pulled to a generally vertical position and the free end of the cord 32 is wrapped around a second, matching button 33, which is affixed to an end portion of the adjacent longitudinal side wall 12d. This is done at each corner 27. The cord 32 bolsters the corners 27 of the device and resists pressure from bath water in the bath device 10 once it is filled. This button and cord embodiment is shown in an open position in FIG. **14**. Pegs may be used in place of the buttons.

Another embodiment illustrated in FIGS. **15** and **16** further comprises at least two low pegs 42, 44, and an elasticized band 43. A first one of the pegs 42 is attached to an outside face of an end portion of an end side wall 12b. A second one of the pegs 44 is affixed to an end portion of an adjacent one of the longitudinal side walls 12d. A portion of the band 43 is wrapped around the first peg 42. Another portion of the band 43 is fastenable around the second peg 44, as shown in FIG. **16**. This is done at each corner 27. The band 43 bolsters the corners 27 of the device and resists pressure (with a slight

amount of give from the elasticized band) from bath water in the bath device 10 once it is filled. This peg and band embodiment is shown in a folded position in FIG. **15**, and in an open position in FIG. **16**. Buttons may be used in place of the pegs.

Returning to FIGS. **1** and **6**, water is added once the bath device 10 is open on a bed 13 with the user in it, the user is ready, the drainage hose 18 has been connected, and the closure mechanism 16 has been closed. Water may be poured into the bath device 10 using any suitable container. Preferably, though, a portable water tank 35 with an attached hose 36 is utilized. The water tank 35 is on a stand 37 having wheels at the bottom, so the bed need not be near a water source. The portable tank is also advantageous in that ingredients, such as skin softeners, perfumes, oils, water softeners, prescribed, water-soluble skin medications, etc. can be added to the tank and mixed into the water. Once water has been added to the water tank 35 through the top, the water tank 35 is wheeled to the bedside, as shown in FIG. **1**. The free end of the water hose 36 is held over the patient and a hose clamp 38 is removed from the end of the water hose 36 (see FIG. **6**). To avoid accidents, the patient's head is preferably elevated on a movable, water proof pillow while her or his body is bathed. A soft, waterproof liner may be placed in the bath device under the patient, if desired; however, no additional parts are needed. The bottom wall 11 is relatively thin, and the bath device 10 is comfortable, particularly since the patient/user is lying on the bed.

To avoid overfilling, the water tank 35 preferably only holds enough water to fill the bath device 10. Even though only a few inches of water are added to the bed bath device 10, the patient is substantially immersed in the water, and the bath afforded by this bath device is much superior to a sponge bath and helps the patient to feel clean again. If the bath device is accidentally overfilled, water will overflow the low, erect side walls. Even though the patient remains bed-ridden, this bath simulates a return to normalcy. At

the same time, his bath device is easy to operate and does not place an undue burden on the assistant administering the bath.

If the assistant, or patient, wishes to temporarily stop the water input, he (or she) can pinch off the water hose 36, or reapply the hose clamp 38 (see FIG. **6**). It is not advisable for the assistant to leave the bedside, though.

To empty the bath water 20 during or after the bath, the closure mechanism 16 is switched to an open position and the bath water drains out though the drainage hose 18 into the bucket 19, as shown in FIG. **1**. (The bucket must be emptied when it is full.) The bath device can then be toweled down along with the patient. The drainage hose 18 is disconnected. The bath device is removed by collapsing at least one longitudinal side wall (see FIG. **2**) and pushing it, along with the adjacent portion of the bottom wall 11, under the patient, then pulling it out from the other side of the patient (see FIG. **6**). The lightweight bath device 10 is then folded into a storage position (see FIG. **3**, for example). It can easily be stored along with the drainage hose, and reused as desired.

Turning now to FIG. **17**, one end of the water hose 36 may be connected directly to a water spigot 39 of a sink 40, if desired, instead of a portable water tank. This is advantageous in that it provides a certain amount of water pressure, no refilling is necessary, and warm water can be added as desired. An opposite, free end of the water hose 36 preferably has a spray shower head 41 attached so the patient can be given a shower as well as a bath. A shower head 41 may be used with any of the embodiments herein.

The bath device of the present invention can be used in nursing homes, hospitals, or other facilities for a series of patients, or in private homes. The bath device is available in different sizes for large adults, smaller adults, and children. The bath device

may be gaily colored. The inside of the longitudinal side walls may have cartoon characters or other designs for the enjoyment of a child user.

The bath device 10 can also be used in a funeral home for a final washing of a body. Since the present device is portable, it can be brought to the body, which need not be moved to and from the surface on which it is lying.

From the foregoing it can be realized that the described device of the present invention may be easily and conveniently utilized as a bath device for use on a bed or other support surface. It is to be understood that any dimensions given herein are illustrative, and are not meant to be limiting.

While preferred embodiments of the invention have been described using specific terms, this description is for illustrative purposes only. It will be apparent to those of ordinary skill in the art that various modifications, substitutions, omissions, and changes may be made without departing from the spirit or scope of the invention, and that such are intended to be within the scope of the present invention as defined by the following claims. It is intended that the doctrine of equivalents be relied upon to determine the fair scope of these claims in connection with any other person's product which fall outside the literal wording of these claims, but which in reality do not materially depart from this invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

BRIEF LIST OF REFERENCE NUMBERS
USED IN THE DRAWINGS

10	bath device
11	bottom wall
12	side wall
12a,b	end side walls
12c,d	longitudinal side walls
13	bed
14	upper surface of bed
15	aperture
16	closure mechanism of aperture
17	corner of lower end of bath device
18	drainage hose
19	bucket
20	bath water
21	mattress
22	flange
23	metal or rubber strip
24	seam
25	corner pleat
26	snap
27	side wall corner
28	strap
29	attached end of strap
30	hook and loop patches
31	first button
32	cord

33 second button

35 portable water tank

36 water hose

37 stand

38 clamp

39 spigot

40 sink

41 shower head

42 first peg

43 elasticized band

44 second peg